AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-referenced application:

1.-3. (Canceled)

4. (Currently amended) A module for converting an optical signal to a digital signal comprising:

an optical filter passing a filtered signal comprising a select range of frequencies present in an optical signal;

a photodiode converting the optical signal to a current;

a transimpedance amplifier converting the photodiode current to a voltage at an output of the transimpedance amplifier;

a sawtooth generator producing a sawtooth wave, the sawtooth wave having a first segment with a non-varying positive slope and a second segment immediately following and adjacent to the first segment, the second segment having a negative slope, wherein the magnitude of the slope of the second segment is greater than the magnitude of the slope of the first segment;

a synchronization input coupled to the sawtooth generator; and

a comparator directly coupled to the output of the transimpedance amplifier and arranged to receive the sawtooth wave, the comparator comparing the sawtooth wave with the output of the transimpedance amplifier in accordance with the synchronization input to produce a pulse-width modulated digital output.

5.-9. (Canceled)

10. (Currently amended) A method of converting the intensity of an optical source to a pulse-width modulation signal in a single integrated circuit comprising:

filtering incident light from the optical source such that wavelengths of visible light impinge a sensor sensitive to a select range of wavelengths, wherein the select range of wavelengths is associated with one of red, green and blue light;

converting the select range of wavelengths of visible light to a current;

converting the current to a voltage;

generating a sawtooth wave, the sawtooth wave having a first segment with a non-varying positive slope and a second segment immediately following and adjacent to the first segment, the second segment having a negative slope, wherein the magnitude of the slope of the second segment is greater than the magnitude of the slope of the first segment; and

comparing the sawtooth wave to the voltage representing the select range of wavelengths of visible light to produce a digital pulse-width modulated output, wherein the steps of converting the current, generating and comparing are accomplished in a single integrated circuit.

11.-12. (Canceled)

13. (Currently amended) An apparatus for converting light to a digital signal comprising:

a single module comprising a ground pin, a single supply pin, a synchronization pin and an output pin, the module further comprising:

an optical filter passing a filtered signal comprising a select range of frequencies associated with one of red, green and blue light present in an optical signal;

a photodiode configured to convert incident light to a current;

a transimpedance amplifier configured to convert the current to a voltage;

a sawtooth generator configured to produce a sawtooth wave responsive to a synchronization signal provided via the synchronization pin,

the sawtooth wave having a first segment with a non-varying positive slope and a second segment immediately following and adjacent to the first segment, the second segment having a negative slope, wherein the magnitude of the slope of the second segment is greater than the magnitude of the slope of the first segment; and

a comparator configured to receive the sawtooth wave and the voltage to produce a pulse-width modulated digital output, wherein an output of the transimpedance amplifier is directly applied to an input of the comparator.

14. (Previously presented) The integrated circuit of Claim 13 where the module further comprises a single substrate.

15. (Previously presented) The integrated circuit of Claim 14 where the transimpedance amplifier, sawtooth generator, and comparator are implemented on the single substrate.

16. – 17. (Canceled)